FOR COLLECTION OF COMPOSITE SOIL SAMPLES FOR LABORATORY ANALYSIS OF ASBESTOS VIA POLARIZED LIGHT MICROSCROPY WITH VISUAL ESTIMATION

Date: May 9, 2017

1.0 PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to establish guidelines for the collection of composite surface soil samples for laboratory analysis of asbestos via polarized light microscropy (PLM) with visual estimation, EPA Method 600/R-93/116. This SOP describes the procedure and equipment needed to collect composite soil samples using hand tools prior to shipment to the laboratory for analysis.

2.0 CONSIDERATIONS

One composite soil sample will be collected from each grid, not to exceed 3,000 square feet. Thirty randomly generated sample points will be selected within each grid. At each of these thirty locations, a soil sub-sample will be collected at the surface, between 0 feet and 0.5 feet, with a hand tool, such as a stainless steel hang auger or trowel. The thirty equal sub-samples of soil will be composited in a large stainless steel bowl and mixed by hand to homogenize.

3.0 EQUIPMENT AND MATERIALS

a. Safety first. Obtain the appropriate Job Safety Analysis (JSA) and personal protection equipment (PPE), as specified in the site Health and Safety Plan (HASP).

b. A work plan which outlines soil sampling requirements including the site-specific DQOs and an explanation of the gridded area to be sampled.

c. Field notebook, field form(s), maps, chain-of-custody forms, and custody seals.

d. GPS.

e. Decontamination supplies (including: non-phosphate laboratory grade detergent, buckets, brushes, potable water, distilled water, plastic sheeting, etc.).

f. Sampling device (Stainless steel hand auger, stainless steel trowel, etc.).

g. Stainless steel spoons.

h. Stainless steel bowls (approximately 4 quarts).

i. Disposable Nitrile sampling gloves and cut-proof gloves.

j. Laboratory-supplied sample containers with labels.

k. Cooler.

l. Plastic sheeting.

m. Black pen and indelible marker.

n. Zip-lock bags and packing material.

o. Tape measure.

p. Paper towels or clean rags.

q. Masking and packing tape.

r. FedEx mail forms or schedule courier pickup.

4.0 PROCEDURE

4.1 The spatial extent of the grid should not exceed 3,000 square feet. Grid boundaries will be determined prior to the work in the field. Boundaries will be loaded into the GPS for specific borders to be accessible during sampling

4.2 The sampling pattern strategy will be accomplished by following simple random sampling within the entire grid. Thirty soil sub-samples will be taken from random locations across each 3,000 square feet or less grid. These sample locations will be chosen using a computer program to randomly generate the locations to avoid bias being introduced. Each sub-sample location within the grid will be located utilizing field maps and the GPS. If the precise GPS location is not accessible or obstructed, move the point to the closest accessible location without regard to direction. The distance and direction moved should be noted on the field data sheet for the grid.

4.3 Hand tools, such as stainless steel hand augers or trowels should be used to collect the surface samples due to the limited depth to be collected. The soil should be observed for any evidence of visual contamination and/or unique circumstances. Any such observations should be noted.

Sampling devices can be used within a grid without decontamination but should be decontaminated or disposed of between grids. If sampling tools will be used for two or more grids, they should be cleaned of soil particles, decontaminated with the appropriate solutions or solvents, and dried between grids. Typically, rinse (decontamination) blanks can be used to evaluate the potential effects of cross contamination, if needed.

4.4 Each of the sub-sample locations will have the same approximate volume (100 grams) collected. All sub-samples will be placed in a stainless steel bowl and mixed thoroughly. Soil with grain size greater than approximately 0.5 inches should be removed before placing the soil in the stainless steel bowl. All soil samples must be thoroughly mixed to ensure that the sample is as representative as possible of the sample media.

4.5 Place the sample in a laboratory-supplied, pre-cleaned sample container. The samples will be shipped to the laboratory where the samples will be pre-processed and prepared in accordance with the laboratory SOP for asbestos polarized light microscopy with visual estimation analysis.

4.6 The sample container will be labeled with appropriate information such as, client name, site location, sample identification (location, depth, etc.), date and time of collection, and sampler's initials. The sample should be placed in a cooler without ice. The sample cooler should be stored in a secure location.

4.7 A chain-of-custody form is completed for all samples collected. One copy is retained and one is sent with the samples in a Zip-lock bag to the laboratory. A signed and dated custody seal is placed on the cooler prior to shipment.

4.8 Samples collected from Monday to Friday are typically to be delivered to the laboratory within 48 hours of collection. If Saturday delivery is unavailable, samples collected on Friday must be delivered by Monday morning. The samples will be delivered to Test America, Inc's EMLab P&K in Denver, Colorado.

4.9 The field notebook and appropriate forms should include, but not be limited to, the following: client name, site location, sample identification, sample date and time collected, sampler's name, and method of sample collection.

4.10 All reusable sampling equipment must be thoroughly cleaned in accordance with the Roux SOP 9.1 decontamination procedures. Discard any gloves, plastic, etc. in an appropriate manner that is consistent with site conditions.

END OF PROCEDURE